

CLAIMS

1. Device for determining the quality of the imaging of printing plates with, in particular,
an optoelectronic sensor for detecting a reference mark (wedge or block), which is
5 arranged on the printing plate within or outside of a printing area and which has different
reference fields, as well as with an evaluation device for evaluating measured values
detected by the sensor, characterized in that the sensor is designed for detecting at least
two reference marks arranged on the printing plate, wherein the reference marks each
have a reference field combination made from at least one tone value reference field and
10 at least one structured reference field, or at least one of the reference marks has at least
one tone value reference field and at least an other one of the reference marks has at least
one structured reference field.
2. Device according to claim 1, characterized in that the two or more reference marks are
15 identical in terms of the reference fields.
3. Device according to claim 1, characterized in that the two or more reference marks are
different in terms of the reference fields.
- 20 4. Device according to one of claims 1 to 3, characterized in that two of the reference
marks are provided, which are spaced apart from each other in a direction of advance or
processing of a printing plate processing device producing the plate imaging and which
are preferably arranged on at least approximately diagonally opposite areas of the
printing plate.
- 25 5. Device according to one of claims 1 to 4, characterized in that the sensor has a number
of detectors corresponding to a number of the reference marks of the printing plate.
6. Device according to one of claims 1 to 5, characterized in that the evaluation device is
30 designed for combinations of measured values from individual ones of the reference
fields that are preset or that can be preset from one or more of the reference marks and

that the evaluation device preferably has a diagnosis system for diagnosing possible causes of errors depending on the measured values or the combination of measured values.

5 7. Device according to one of claims 1 to 6, characterized in that the evaluation device has a display or a similar output unit for displaying the measured values or analysis or diagnosis data determined especially by the output unit with reference to the measured values.

10 8. Device according to one of claims 1 to 7, characterized in that the evaluation device has a data memory for the determined measured values and/or the analysis data determined from the values.

15 9. Device according to one of claims 1 to 8, characterized in that the evaluation device has a desired value memory for different printing technologies and that an input device is provided for selecting and setting the desired values to be used by the evaluation device.

20 10. Device according to one of claims 1 to 9, characterized in that the device is integrated into a printing plate processing device.

25 11. Device according to one of claims 1 to 10, characterized in that the evaluation device has a signal output connected to the printing plate processing device for stopping the printing plate processing device.

30 12. Device according to one of claims 1 to 11, characterized in that the structured reference fields have regular, irregular, symmetric, and/or especially asymmetric figure patterns.

35 13. Device according to one of claims 1 to 12, characterized in that it has at least one additional optoelectronic sensor for detecting at least one identification mark, which is arranged on the printing plate and which is provided preferably in plain text or in coded

form, especially as a barcode, and/or preferably the optoelectronic sensor or sensors provided in a device according to one of claims 1 to 12 is designed for detecting at least one such identification mark.

- 5 14. Method for determining the quality of the imaging of printing plates, in which a reference mark on a printing plate is detected optically and resulting measured values are compared with desired values, characterized in that the measured values are detected from at least two of the reference marks with at least one tone value field and at least one structured field and that absolute measured values of the reference marks are stored and
10 compared with desired values stored in an evaluation device.

15. Method according to claim 14, characterized in that the measured values of several printing plates detected one after the other are analyzed in a time-value profile.

- 15 16. Method according to claim 14 or 15, characterized in that the measured values or combinations of at least two measured values are compared automatically with values from a diagnosis table for determining possible causes of poor quality in the plate imaging of the printing plate.

- 20 17. Method according to one of claims 14 to 16, characterized in that the measured values and/or diagnosis data determined with reference to the measured values is output on an output unit.

- 25 18. Method according to one of claims 14 to 17, characterized in that information from edge areas of adjacent reference fields and/or from the edges of the reference fields is also used for determining a quality of the plate imaging by the printing plates.

19. Method according to one of claims 14 to 18, characterized in that a device according to one of claims 1 to 13 is used.

20. Reference mark with different reference fields for determining a quality of imaging of printing plates, characterized in that the reference mark has a reference field combination made from at least one tone value field and at least one structured field.

5 21. Reference mark according to claim 20, characterized in that edge regions of individual ones of the reference fields and/or transition regions of adjacent ones of the reference fields form additional auxiliary reference fields.

10 22. Reference mark according to claim 20 or 21, characterized in that the reference mark has multiple, preferably twelve, reference fields arranged as a matrix.

23. Reference mark according to one of claims 20 to 22, characterized in that the reference mark has a combination of structured reference fields with regular, irregular, symmetric, and/or especially asymmetric figure patterns.

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24. Reference mark according to one of claims 20 to 23, characterized in that the reference mark has a width of approximately 5 mm to 7 mm and a height of approximately 4 mm to 5 mm.

20 25. Reference mark according to one of claims 20 to 24, characterized in that the reference mark has an identification mark for unique identification of the corresponding printing plate or that an identification mark is allocated to the reference mark.

25 26. Reference mark according to one of claims 20 to 25, characterized in that the identification mark is a plain text label or a coded label, preferably a barcode.

27. Printing plate with at least two reference marks according to one of claims 20 to 26.